

embodiment of the present invention.

FIG. 16 shows the dependency of  $B_2$  upon  $A_x$  that determines the good image range for the refractive index distribution coefficients  $h_4$ ,  $h_6$ , and  $h_8$  of the rod lenses used in an optical imaging system according to an embodiment of the present invention.

FIG. 17 shows the dependency of  $p$  upon  $x_0$  that determines the good image range for the refractive index distribution coefficients  $h_4$ ,  $h_6$ , and  $h_8$  of the rod lenses used in an optical imaging system according to an embodiment of the present invention.

FIG. 18 shows the dependency of  $q$  upon  $x_0$  that determines the good image range for the refractive index distribution coefficients  $h_4$ ,  $h_6$ , and  $h_8$  of the rod lenses used in an optical imaging system according to an embodiment of the present invention.

FIG. 19 shows the dependency of  $s$  upon  $x_0$  that determines the good image range for the refractive index distribution coefficients  $h_4$ ,  $h_6$ , and  $h_8$  of the rod lenses used in an optical imaging system according to an embodiment of the present invention.

FIG. 20 shows the dependency of  $|C^*|$  upon  $|A^*| \cdot m^2$  that determines the good image range for the refractive index distribution coefficients  $h_4$ ,  $h_6$ , and  $h_8$  of the rod lenses used in an optical imaging system according to an embodiment of the present invention.

Fig 2iA and 2iB ~~FIGS.~~ are cross-sectional view showing an optical imaging system provided with a parallel plane transparent substrate according to an embodiment of the present invention.

FIG. 22 shows another way of determining the good image range for the refractive index distribution coefficients  $h_4$ ,  $h_6$ , and  $h_8$  of the rod lenses used in an optical imaging system according to an embodiment of the present invention.

### 30 DESCRIPTION OF THE PREFERRED EMBODIMENTS

Hereinafter, the present invention will be described more specifically by way of an embodiment.

As shown in FIGS. 1 and 2, this embodiment employs a rod lens array 2 for one-to-one imaging, where a plurality of columnar rod lenses 1 having a refractive index distribution in the radial direction are arranged in two rows with their optical axes 1a in parallel. A manuscript plane 3 and an image plane 4 are located on the opposite sides of the rod lens array 2.